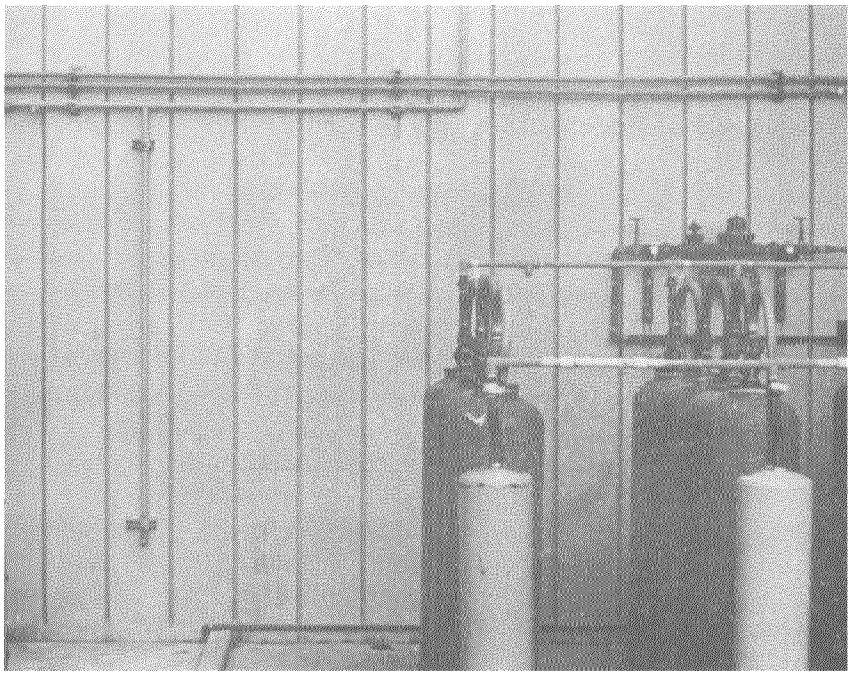

Fig. 7.37 Diagonal crack in north-south shear wall near base of north stair tower of Biological Science II Building, UCSB. (View from west).

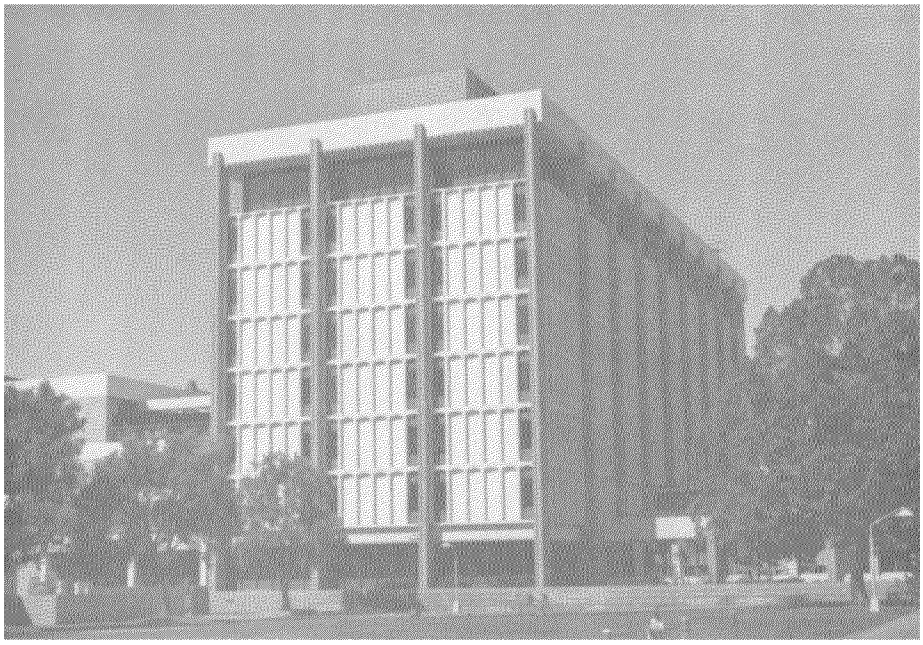

Fig. 7.38 Eight story Library III Building, UCSB. This building also sustained cracks in shear walls in lower stories.

These buildings typically have long plan dimensions in the east-west direction, and are reinforced concrete shear wall structures of one or two stories in height. Examples of such buildings are those at the Delco Electronics facilities of the General Motors Corporation at 6767 Hollister Avenue in Goleta (see Fig. 1.2). At this facility there are two nearly identical long two story office buildings (Administration and Engineering Buildings) with reinforced concrete shear walls at the ends and near the center stairway. Each of these buildings received moderate cracking of the shear walls in an X pattern, with most extensive cracking in the north-south shear walls in the first and second stories as shown in Figs. 7.39 through 7.41. It appears that the west end of the buildings sustained significantly more damage than the east end. The north-south shear wall at the west end of the Administration Building received severe cracking near the header over the doorway, as shown in Figs. 7.42 and 7.43.

Also located at the Delco Electronics facilities is a precast concrete panel tilt-up structure with longest plan dimensions in the north-south direction. The structure is one story high, has a flat roof, houses several laboratories, and is known as the Research and Development Building. Earthquake damage to this structure consisted primarily of working loose of the joints between panels, as shown in Figs. 7.44 and 7.45. The reinforced concrete column which forms the south-west corner of the building suffered considerable cracking and spalling, as shown in Fig. 7.46. The panels aligned along the north-south direction, which form the long east and west exterior walls, apparently rocked back and forth with sufficient amplitude to open a ½ inch gap between the roof beam and panels. The damage was more apparent along the western edge of the building.

A large one story steel frame and sheet metal building which houses the Flight Physics Laboratory is also located at the Delco facility. The longest plan dimension of this building is in the east-west direction. Relatively minor earthquake damage was sustained by this building. A steel column near the large sliding doors at the west end was not properly anchored to the concrete floor slab and consequently slipped toward the west causing misalignment of the doors. Some of the sheet metal panels which form the exterior walls in the longitudinal direction are designed to break loose during an explosion within the building. A few of these panels had broken loose at the corners after the earthquake as shown in Fig. 7.47. Other damage to this building consisted of many fallen light fixtures.

At the Santa Barbara Municipal Airport which forms the northern boundary of the UCSB campus (see Fig. 1.2), several large one story wood frame commercial buildings received minor damage. Damage to these buildings, which are founded on soft alluvium, included some minor differential settlement of foundations which caused cracks in the concrete floor slabs. Some wall panels in the north-south direction were torn loose from the wood studs, as shown in Fig. 7.48. These buildings often have large spans without interior walls. The wood columns in such open span areas were occasionally shifted along the north-south direction, as shown in Fig. 7.49. Many of the commercial buildings at the airport were built in the 1940's.